

John D. Jarrell, PhD, PE

EDUCATION- ScB, Materials Science and Engineering, Brown University, Providence, Rhode Island, May 1988.
 MSc, Materials Science and Engineering, Brown University, Providence, Rhode Island, May 1991.
 Professional Engineer License (PE), Mechanical Engineering, Rhode Island, February 14, 1996.
 PhD, Biology, Medical Science and Engineering, Brown University, Providence, Rhode Island, May 2008.

Dr. John D. Jarrell, PhD, PE, is an experienced multi-discipline engineer specializing in the analysis of complex designs and failures involving materials, mechanical and biological systems. He has been a licensed Professional Mechanical Engineer, since 1996 and actively involved in engineering analysis, design, product development and research. He earned three degrees from Brown University, a Bachelors and Masters of Science in Materials Science and Engineering and a Doctorate in Biology, Medical Science and Engineering and received Medical training in histology, physiology, microbiology and pathology. He has an appointment in the Department of Orthopaedics at the Alpert Medical School of Brown University. He has several US and foreign patents issued or pending covering photoactive materials, active delivery films and coatings for green energy and medical applications. He is the author of multiple peer reviewed publications and abstracts on materials and coatings and a guide book on materials selection for designers. His collaborative work has been published with investigators at Brown University Department of Molecular Pharmacology, Physiology, and Biotechnology, and the Division of Engineering, Rhode Island Hospital's Orthopedic Research Laboratories and the VA Center for Restorative and Regenerative Medicine. His company has been awarded contracts by the Department of Veterans Affairs, Rhode Island Hospital and the US Department of Justice. He has been a voting committee member of ASTM for standards on Medical and Surgical Materials and Devices.

SOCIETY AFFILIATIONS- ASTM Intl.; Orthopaedic Research Society (ORS); Society for Biomaterials; National Society of Professional Engineers (NSPE); American Society for Materials, International (ASM); International Metallographic Society (IMS); Heat Treating Society (HTS); Society of Carbide and Tool Engineering (SCTE); Electronic Device Failure Analysis Society (EDFAS); Society for Automotive Engineering International (SAE); Surfaces in Biomaterials Foundation; International Association for Property and Evidence (IAPE), The International Congress for Joint Reconstruction (ICJR)

CERTIFICATIONS- Hazardous Waste, Laboratory Safety, Blood Borne Pathogens (Brown University), Electrosurgery CE Module (Valleylab, Institute of Clinical Education), Human Participant Protections Education for Research Teams (National Institutes of Health), CITI Course in The Protection of Human Research Subjects

AWARDS & HONORS- 1) Best in Show, 1st, 2nd & 3rd Place Awards for Microscopy, ASM Intl., RI Chapter, 1994. 2) Sigma Xi Honor Society. 3) 2009 Entrepreneur Track Winner of the RI Business Plan Contest. 4) RI House of Rep. Citation for developing a propriety technology to thwart infection relating to medical device use, May 2009. 5) RI House of Rep. and Secretary of State, Certificate of Congratulations, (Res. 09-264) June 2009. 6) 2010 Rhode Island Innovation Award in the category of Health Care & Biotechnology Innovations.

EMPLOYMENT & APPOINTMENTS

Teaching Associate in Orthopaedics, February 1, 2010 through June 30, 2016, Department of Orthopaedics, Alpert Medical School, Division of Biology and Medicine, Brown University.

Founder, President and Managing Director January 2009 to present, BIOINTRAFACE INC., North Kingston, RI. Coordinates R&D and intellectual property for comprehensive collaborative development of Basic Science Research into practical medical technologies and treatments for medical devices and implants.

President, April 1993 to present, MATERIALS SCIENCE ASSOCIATES, LLC, East Greenwich, RI. Biomedical Engineering, Metallurgical, Materials Science & Mechanical Engineering consulting services for Government, Hospital, Legal, Insurance, Medical, and Manufacturing needs. Performs failure analysis, materials, process and site evaluations, biomaterial and medical implant design and testing, fabrication and surgery, professional reports, oral presentations & expert opinions.

Materials Science Engineer, March 1991 to March 1993, Thielsch Engineering Inc., Cranston, RI. Provided engineering and failure analyses for local clients, including analysis of fastener systems, pressurized vessels and piping, electrical components, bearings, medical devices & coatings, nuclear components, manufacturing processes, materials and process selection. Specialized in fractography, chemical & corrosion analysis. Received in-house training from Helmut Thielsch, Sr., PE.

Research and Teaching Assistant, September 1989 to February 1991, Brown University, Department of Advanced Materials Research, Providence, RI. Performed initial investigation of a lightweight aerospace material for Martin Marietta Laboratories, with enhanced room temperature fracture toughness to encourage commercial use. Investigated effect of high rate pressure-shear on copper foils, funded by the Office of Naval Research.

Engineering Investigator, March 1987 to September 1989, Avery Technical Services (ATS), Inc., Barrington, RI. Investigated, analyzed, and documented industrial, home and automotive incidents involving mechanical and material failures for legal and insurance purposes. Specialized in personal and industrial accident reconstructions.

RESEARCH PUBLICATIONS

Nathan P. Thomas, Nhiem Tran, Phong A. Tran, Jerry L. Walters, **John D. Jarrell**, Roman A. Hayda, Christopher T. Born, Characterization and Bioactive Properties of Zirconia based Polymeric Hybrid for Orthopedic Applications, *Journal of Materials Science: Materials in Medicine* (In Press)

Matthew D. Young, Nhiem Tran, Phong A. Tran, **John D. Jarrell**, Roman A. Hayda, Christopher T. Born. Niobium oxide–polydimethylsiloxane hybrid composite coatings for tuning primary fibroblast functions, *J Biomed Mater Res A*, JUNE 24, 2013.

Nhiem Tran, Phong Tran, **John D Jarrell**, Julie Engiles, Matthew Young, Nathan Thomas, Roman Hayda and Christopher Born. In vivo Caprine Model for Osteomyelitis and Evaluation of Biofilm Resistant Intramedullary Nails, *BioMed Research International*, vol. 2013, Article ID 674378, 11 pages, 2013. doi:10.1155/2013/674378

J. Jarrell, N. Thomas, M. Young, C. Baker, J. Morgan, P. Tran, N. Tran, R. Hayda, C. Born. Bioactive Hybrid Material Surface Treatments for Infection Resistant Implants without Drugs, *ASM, Medical Device Materials VI, Proceedings from the Materials and Processes for Medical Devices Conference*, August 8–10, 2011, Minneapolis, Minnesota, USA, pg 143-148.

J. Jarrell, J. Walters, N. Thomas, M. Young, P. Tran, N. Tran, R. Hayda, C. Born. Improving the Bioresponse to Polymers using Zirconium and Tantalum Hybridization, *ASM, Medical Device Materials VI, Proceedings from the Materials and Processes for Medical Devices Conference*, August 8–10, 2011, Minneapolis, Minnesota, USA, pg 74-79.

Jarrell JD, Dolly B, Morgan JR. Rapid screening, in vitro study of metal oxide and polymer hybrids as delivery coatings for improved soft-tissue integration of implants. *J Biomed Mater Res A*, Volume 92A, Issue 3, Pages 1094-1104, 1 March 2010.

Jarrell JD, Dolly B, Morgan JR. Controlled release of vanadium from titanium oxide coatings for improved integration of soft tissue implants. *J Biomed Mater Res A*, Volume 90A, Issue 1, Pages 272-281, June 2009.

Jarrell JD. Active metal oxides and polymer hybrids as biomaterials. PhD Thesis, Brown University, Providence RI, USA 2008.

Jarrell JD, Eun TH, Samale M, Briant C, Sheldon BW, Morgan JR, Metal Oxide Coated (MOC) Cell Culture Arrays for Rapid Biological Screening. *Journal of Biomedical Materials Research: Part A* 2007;83A:853-860.

JD Jarrell, Dislocation Structures of OFHC Copper Deformed by High Rate Pressure-Shear, Master's Thesis: Brown University, Providence, RI, May 1991.

ABSTRACTS

Nhiem Tran, Michael N. Kelley, **John D. Jarrell**, Roman A. Hayda, Christopher T. Born, Silver Doped Titania – Siloxane Hybrids: Novel Coatings for Improving Antibacterial Property of Polyether Ether Ketone (PEEK), *The Stevens Conference: The 2nd Conference on bacteria-Materials Interactions*, Hoboken, NJ, June 2013.

J.D. Jarrell, N. Tran, P.A. Tran, J. Engiles, R.A. Hayda, C.T. Born. Bioactive hybrid materials coating for infection resistant implants and devices, *Hybrid Materials 2013, Third International Conference on Multifunctional, Hybrid and Nanomaterials*, Sorrento, Italy, March, 2013.

J.D. Jarrell, N. Tran, R.A. Hayda, C.T. Born, Antimicrobial silver release from titanium oxide polymer hybrid coated PEEK, *Hybrid Materials 2013, Third International Conference on Multifunctional, Hybrid and Nanomaterials*, Sorrento, Italy, March, 2013.

Jarrell JD; Tran N; Born CT. Improving the Bioactive properties of Polyether ether ketone (PEEK) with Antimicrobial Titanium Oxide Hybrid Coatings. 59th Annual Meeting of the Orthopaedic Research Society, San Antonio, Texas, January 2013.

Tran N, Tran PA, Baker C, **Jarrell JD**, Hayda RA, Born CT. In vitro and in vivo evaluation of bioactive hybrid materials coating for infection resistant implants. Journal of Tissue Engineering and Regenerative Medicine, Proceeding of TERMIS 2012.

Jarrell JD; Tran PA; Baker C; Morgan JR; Hayda RA; Born CT. Bioactive Hybrid Material Surface Treatments for Infection Resistant Implants without Drugs, ASM, Materials and Processes for Medical Devices 2011, Annual Meeting and Exposition: Minneapolis, MN, USA, August 8-10, 2011.

Tran PA; **Jarrell JD**; Baker C; Hayda RA; Born CT. Improving the Bioresponse to Polymers using Zirconium and Tantalum Hybridization, ASM, Materials and Processes for Medical Devices 2011, Annual Meeting and Exposition: Minneapolis, MN, USA, August 8-10, 2011.

Jarrell JD; Tran PA; Baker C; Morgan JR; Hayda RA; Born CT. Surface Treatments for Orthopaedic Implants which Prevent Bacteria Growth and Support Cell Proliferation, Society For Biomaterials 2011 Annual Meeting and Exposition: Orlando, Florida, April 13 - 16, 2011.

Tran PA; **Jarrell JD**; Baker C; Morgan JR; Hayda RA; Born CT. Effects of Addition of Transition Metal Oxides to Polymer on Growth of Human Cells, Society For Biomaterials 2011 Annual Meeting and Exposition: Orlando, Florida, April 13 - 16, 2011.

Jarrell, J D; Young M D; Walters J L; Trans P; Born, C T. Transitional Metal Oxide Hybrid Surface Treatments for Bioactive and Antimicrobial Orthopaedic Trauma Implants, 57th Annual Meeting of the Orthopaedic Research Society, Transactions Vol. 36, No. 1550, Long Beach, CA, January 2011.

Tran PA; **Jarrell J D**; Young MD; Walters JL; Hayda RA; Born CT. Hybrid Surface Treatments for Bioactive and antimicrobial Orthopaedic Trauma Implants, 18th Annual Hospital Research Celebrations, Rhode Island Hospital, October 21, 2010.

Jarrell, J D; Spenciner, D; Morgan, J R; Hayda, R A; Born, C T. Antimicrobial Hybrid Coatings for External Fixation Pins, Society For Biomaterials 2010 Annual Meeting; April 21 - 24, 2010 in Seattle, Washington, USA.

Jarrell, J D; Puckett, S; Morgan, J R; Hayda, R A; Born, C T. Durability of Bioactive, Antimicrobial Biointerface on External Fixation Pins, 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, Louisiana, Transactions Vol. 35, No. 2177, New Orleans, LA, 2010.

Jarrell, J D; Werlin, E C; Weinstock, B; Puckett, S D; Morgan, J R; Ciombor, D M; Aaron, R K. Rapid Development of Photoactive Solid State Dispersions as Biointerfaces for Orthopaedic Implants, Hybrid Materials 2009, First International Conference on Multifunctional, Hybrid and Nanomaterials, Transactions, A1.3.07, Tours France, March, 2009.

Jarrell, J D; Werlin, E C; Weinstock, B; Puckett, S D; Morgan, J R; Ciombor, D M; Aaron, R K. Rapid Development of Biointerfaces for Antimicrobial Transcutaneous Osseointegrated Implant Devices (TCOIDs). 55th Annual Meeting of the Orthopaedic Research Society, Transactions Vol. 34, No. 0555, Las Vegas, NV, February, 2009.

John D Jarrell, Evan C Werlin, Sabrina Puckett, Jeffrey R Morgan. Active metal oxide and polymer hybrid coatings for antimicrobial devices. BioInterface 2008, Annual Symposium, Surfaces in Biomaterials Foundation, Min., MN, October, 2008.

Evan C. Werlin, **John D. Jarrell**, Jeffrey R. Morgan, The Effect of Precursor Selection and Coating Thickness on the Photoactivity of a Novel Metal-Polymer Hybrid. 34th Annual North East Bioengineering Conference, April 4-6, 2008.

JD Jarrell, EC Werlin, JR Morgan. Novel light-activated antimicrobial controlled delivery polymer hybrids for osseointegrated transcaneous devices. 54th Annual Meeting of the Orthopaedic Research Society, Transactions Vol. 33, No. 1729, San Francisco, CA March, 2008.

John D Jarrell and Jeffrey R Morgan. Bioactive Polymer Hybrids to Improve the Soft Tissue Seal Around Percutaneous Devices. BioInterface 2007, Annual Symposium, Surfaces in Biomaterials Foundation, San Mateo, CA, October 31, 2007.

John D. Jarrell, Jeffrey R. Morgan, Bioactive Polymers for Soft Tissue Sealing of Osseointegrated Prosthetic Attachments, 6th Combined Meeting of the Orthopaedic Research Societies, Honolulu, Hawaii, No. 0063, October 21-24, 2007

Morgan, J.R., **Jarrell, J.D.**, Holt, B., Tripathi, A., and Aaron, R.K. Optimizing the Soft Tissue Seal of a Percutaneous Osseointegration Device. No Barriers Symposium, Squaw Valley, CA. June 30, 2007.

Morgan, J.R., **Jarrell, J.D.**, Holt, B., Tripathi, A., Webster, T., Ciombor, D.M., and Aaron, R.K. Optimizing the Soft Tissue Seal of a Percutaneous Osseointegration Device. 4th International Meeting, Ten Years of the US-Russian Program in Prosthetics and Rehabilitation, New England Sinai Hospital, Stoughton, MA, June 18, 2007.

John D. Jarrell, Tai Hee Eun, Marcus Samale, Clyde Briant, Brian W. Sheldon, Jeffrey R. Morgan, Use of specialized metal oxide films for delivery of bioactive metal compounds, Orthopaedic Research Society, Transactions Vol. 32, No. 1590, San Diego, CA, 2007.

JD Jarrell, Crisco, J.J.*, Moore, D.C.*, McGovern, R.D.*, Coating of Stainless Steel Bone Cutting Devices Enhances Functional Performance, Society for Biomaterials, 23 rd Annual Meeting in conjunction with the 29th Internationals Biomaterials Symposium, New Orleans, Louisiana, April-May 1997, vol. xx, pg 416. (*Orthopedic Research Laboratories, Rhode Island Hospital)

J.D. Jarrell, A Non-Wetting, Conductive Coating Replacement for Teflon (PTFE) in Surgical Applications, Surfaces in Biomaterials '94, Scottsdale, Arizona, September 1994.

JD Jarrell, Chemical Passivation of Stainless Steels Eliminated By Using ME-92 Chromium Composition Coating, Society for Biomaterials, 20th Annual Meeting in conjunction with the 26th Internationals Biomaterials Symposium, Boston, Massachusetts, April 1994

RJ Clifton, W Tong, **JD Jarrell**, Brown University, Dislocation Structures and the High Rate Deformation of Pure Metals, Greece Symposium, 1990.

INDUSTRY PUBLICATIONS

Jarrell JD., BioIntraface®: The Next Quantum in Medical Devices. R I Med J (2013). 2013 Feb 1;96(2):26-8.

JD Jarrell and Frank Bejbl, Medical Plastics and Biomaterials: Special Section, Understanding Wear and Friction in Medical-Grade Stainless Steels, Medical Device & Diagnostic Industry, Canon Communications, August 1999, pg 50-57.

JD Jarrell, Safe, Smooth, Stable Coating Alternative to Teflon, Job Shop Technology Magazine, Prospect, CT, April 1998.

JD Jarrell, Improper Cleaning of Stainless Steels can Cause Delayed Cracking, Job Shop Technology Magazine, Prospect, CT, November 1994.

JD Jarrell and Frank Bejbl, Versatile Coating for Stainless Steel, Medical Materials Update, BBC, Inc., Publication, Norwalk, CT, USA, Volume 1, Number 5, June 1994.

JD Jarrell, Chemical Passivation of Stainless Steels Eliminated By Using ME-92 Chromium Composition Coating, Job Shop Technology Magazine, July 1994.

JD Jarrell, Chemical Passivation of Stainless Steels Eliminated By Using ME-92 Chromium Composition Coating, Medical Equipment Designer Magazine, March 1994.

BOOKS

JD Jarrell, The Medical Device Designer's Guide to Wear and Friction, ME-92 Operations, Providence, Rhode Island, USA, April 1995.

BULLETINS

JD Jarrell, Using Medical Grade Coating Technology to Address Nickel Sensitization, ME-92 Operations Bulletin Report, by Materials Science Associates, Providence, RI, May 6, 1994.

JD Jarrell, Improving the Wear, Galling and Frictional Characteristics of Medical Instruments with ME-92® Coating, ME-92 Operations, Internal Report by Materials Science Associates, Providence, RI, November 1993.

JD Jarrell, Use of ME-92 Coating to Reduce the Risk of Exposure to Bioreactive Nickel-Bearing Materials," ME-92 Operations Bulletin Report, by Thielsch Engineering Inc., Cranston RI, April 22, 1993.

SEMINAR PRESENTATIONS

Invited Speaker: Trends & Opportunities in the Engineering Industry
CareerBuilder.com, WebEx Conference, December 5, 2008.

Active metal oxide and polymer hybrid coatings for antimicrobial devices
BioInterface, Workshop and Symposium, Antimicrobial Surfaces Session, Minneapolis, MN, October 28, 2008.

Novel light-activated antimicrobial controlled delivery polymer hybrids for osseointegrated transcutaneous devices.
54th Annual Meeting of the Orthopaedic Research Society, March, 2008.

Bioactive Polymers for Soft Tissue Sealing of Osseointegrated Prosthetic Attachments,
6th Combined Meeting of the Orthopaedic Research Societies, Honolulu, Hawaii, October, 2007

Advanced Bioactive Hybrid Materials for Percutaneous Devices,
Rhode Island Hospital, Grand Rounds, Student Research Day, May 23, 2007

Use of specialized metal oxide films for delivery of bioactive metal compounds
Orthopaedic Research Society, San Diego, CA, February, 2007.

Rapid biological screening of metal-organic coatings for percutaneous devices,
Regional Bioengineering and Biotechnology Conference U. Mass. Dartmouth, February 9, 2007

Invited Speaker: Fatigue failure of a stainless steel propeller shaft,
National Association of Marine Surveyors, New England Region, December, 2001

Invited Speaker: Metallurgical failure analysis,
National Association of Marine Surveyors, New England Region, November 5, 1999

A Non-Wetting, Conductive Coating Replacement for Teflon (PTFE) in Surgical Applications,

Surfaces in Biomaterials '94, Scottsdale, Arizona, September 1994

Chemical Passivation of Stainless Steels Eliminated By Using ME-92 Chromium Composition Coating, Society for Biomaterials, 20th Annual Meeting in conjunction with the 26th International Biomaterials Symposium, Boston, Massachusetts, April 1994.

INVITED REVIEWER FOR:

Journal of Biomedical Materials Research: Part A
Official Journal of the Society for Biomaterials (USA)
John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, USA

Medical Science Monitor
International Medical Journal for Experimental and Clinical Research
International Scientific Literature, Inc. 361 Forest Lane, Smithtown, NY 11787, USA

Tissue Engineering
Mary Ann Liebert, Inc., 140 Huguenot Street, 3rd floor, New Rochelle, NY 10801-5215

Journal of Material Science: Materials in Medicine
Springer Publishing, 15th floor, Salmon Tower Midtown Manhattan, New York City, NY

PATENTS & APPLICATIONS

United States Patent 7868078, *Composition including metal oxide and polymer*

United States Patent 8080223, *Method of making a composite from metal oxide and polymer precursors*

US Applications: 20090104095, 12/253530 (Utility, Patent pending) Filed 10/17/2008
Method of Making a Composite from Metal Oxide and Polymer Precursors

20090105384 (12/253555), 20090104473 (12/253354) (Utility, Patent pending) Filed 10/17/2008
Novel Compositions and Related Methods, Coatings, and Articles

20110092870 (12/975,218) Filed 12/21/2010
Composition including metal oxide and polymer

US 60/981263 Filed 10/19/2007 (provisional application)
Novel Compositions and Related Methods, Coatings, and Articles

US 61/556184 Filed 12/05/2011 (provisional application)
Multi-layer metal oxide and polymer controlled delivery systems

International Application
PCT/US08/80371, Filed 10/17/2008
Novel Compositions and Related Methods, Coatings, and Articles

RESEARCH & CONSULTING CONTRACTS

US Department of Justice	7/1 /201 1 6/29/2012	\$23,850.50
United States Attorney's Office		
Thomas H. Barnard, Esq.		
36 S. Charles Street, 4th Floor		
Baltimore, Maryland 21201		
Contract 11 W-USA37-0090		

Expert Consultant on behalf of the US. Aided defense counsel in a Medical Malpractice case involving a failed electro-surgical forceps used in a laparoscopic gynecological procedure, hysterectomy.

Airlift Research Foundation (Sub-award) 1/1/2010-1/1/2012 \$101,863

In Vitro Optimization and Large Animal Study of Anti-infective, Bioactive Intramedullary (IM) Nails: This project involves a two year multi-disciplinary effort, optimizing promising nano-technology hybrid surface treatments and applying them fracture fixation implants were exposed to drug-resistant bacteria and placed in large animals. There is twelve months of *in vitro* work to measure the responses of human cells and bacteria to a series of nano-scale surface treatments, metal oxides and polymer hybrids. This is followed by *in vivo* testing of bacterial inoculated bone screws in a large animal model during the second year. Our goal is to find and test the next generation of bioactive surfaces that actively inhibits bacteria biofilm formation and maximizes bone growth and fracture repair. The animal study is a necessary part of the pre-clinical process leading to an approved human study. A favorable outcome from this pre-clinical research is intended to lead to an FDA approved follow-up clinic study.

Orthopaedic Trauma Research Fund 1/1/2009-7/1/2010 \$188,462
Rhode Island Hospital
Providence, RI/USA

A Bicortical Half Pin Mini-pig Model to Evaluate New Bio-interfaces: This project involves coordinating a multi-discipline approach to the development of large animal models for evaluation the tissue integration and antimicrobial properties of novel biomaterials developed for internal and external fixation devices and bone integration and skin attachment to transcutaneous osseointegrated devices for prosthetic attachment and the treatment of segmental bone defects. A roundtable approach is taken, involving trauma research clinicians, biologists and engineers from academics, hospitals and industry. A high throughput in vitro screening approach is used to validate coating compositions with optimized antimicrobial, cell proliferative and adhesive properties and applied to stainless steel, titanium alloy and composite implants.

VA24-P-0464 (Contract Consultant) 2/1/08-12/30/08 \$104,000
Department of Veterans Affairs
VMAC, Providence, RI/USA

Study: Bone and Skin Attachment for Prosthetic Attachment: This is an investigation of bone integration and skin attachment to transcutaneous osseointegrated devices for prosthetic attachment and treatment of segmental bone defects. The goal is a combine device for use in the repair of traumatic injuries. Biomaterials, device design and surgical approaches are coordinated between multiple disciplines, Biology, Medicine and Engineering nano technology, to address the need for implants which improve healing of segmental bone defects, osseointegration, soft tissue sealing, while preventing infection. A high throughput in vitro screening approach is used to determine coating compositions with optimized antimicrobial, cell proliferative and adhesive properties and applied to titanium alloy and composite implants. Developed small and large animal models.

PARTIAL INVESTIGATION LIST

The following is a partial list of companies and projects Mr. Jarrell has investigated, during his various engagements. A brief description of the services provided is included.

3M Health Care, Surgical Division*, St. Paul, MN
Analysis of medical stapling devices and wires.

ACS Industries, Woonsocket, RI
Characterization of composite materials, plastics, ceramics and metals.

Aeolus Medical Inc.,
Worked on design of preheat breathing mask.

ATC Associates, Inc., Miami, FL
Analysis of water piping system in high rise building.

Advanced Cable Ties, Inc., Ashburnham, MA
Site inspection of plastic extrusion press components.

Advanced Interconnections, West Warwick, RI
Analysis of microelectronics components.

Aeroquip Corporation, Maumee, OH
Materials analysis and interpretation of hydraulic forging blanks.

Allied Signal, Inc., Perrysburg, OH
Inspection of oil filters.

Allstate Insurance, Roanoke, VA
Review of new and replacement automotive sheet metal panel manufacturing and material specifications, galvanization processes and related SAE & CAPA documents for defense of class action suit. Review of repair welding methods for automotive repair and influence on subsequent value of repaired.

Amtrol, Warwick, RI
Corrosion analysis of pressurized vessels used in fresh water and heating systems.
Analysis of welds, brazing, coatings, and corrosion.

Ambrust Chain, Providence, RI
Analysis of chain material and detection of surface sulfur contamination.

Atwood and Morrill, Salem, MA
Analysis of a nuclear poppet valve, with a hard faced sealing surface.

Bard Ventures Division, Tewsbury, MA
Analysis of infrared power sources for medical applications.

Bath Iron Works Corporation, Bath, ME
Abrasive particle analysis involving marine hydraulic system.

Borg-Warner, MA
Analysis of failed transmission components and fluids. Determined extent of system damage from oil particle analysis.

Bird Johnson Company, Walpole, MA

Analysis of submarine power transmission units, bearing surfaces and lubricants. Determined root cause and extent of system damage from oil particle analysis and source of galling to propeller bearings on submarine transmission. Specified corrective measures.

Brewer Yatch Haven Marina, Stamford, CT

Analysis of 2 1/4" stainless steel marine shaft.

CJC Holdings, Inc., Austin, TX

Provided prototype black coating for stainless steel rings.

Crosby Valve and Gauge Company, Wrentham, MA

Analysis of safety valves, pressure relief valves and lead diaphragms. Investigated a series of diaphragms used in train cars carrying liquid chlorine.

Davis Standard, Pawcatuck, CT

Analysis of large extrusion gears and heat treatment of clutch plates from industrial equipment. Analyzed bearings.

Dayton MFG, Farmington, CT

Analysis of multiple lots of heat treated and gold plated electrical contact springs.

Electric Boat Corp., Groton, CT

Corrosion testing, inspection and process recommendations for conversion coating on aluminum alloy enclosure.

Electrolyzing, Inc., Providence, RI

Multiple analyses on industrial devices, involving welds, brazing, corrosion and cleaning. Technical support of coating process and products.

f. h. chase, incorporated, Foxboro, MA

Analysis of anodized clean air room ceiling grid.

Fisher Controls, North Stonington, CT

Investigated valve seals, Teflon materials, and other components of pressurized vessels and piping.

Flour Daniel, Sugarland, TX

Analysis, fractography and technical support involving heating systems and related industrial systems.

Fermont, Bridgeport, CT

Analysis of small engine crankshafts and components involved in government contract.

Federal Products, Providence, RI

Analysis of gauge housings, components and materials.

Foam Technology, North Providence, RI

Review of compatibility of various plastics and composites used to construct cruise ship golf course. Analysis and testing of various foam plastic and composite materials.

Garelick Farms, Inc., Franklin, MA

Analysis of air conditioning and refrigeration system piping.

Gastro-Gnomes, West Hartford, CT

Designed and manufactured high friction, magnetic bases for plastic table menu holders.

Gilson, Inc., Middleton, WI

Analysis of thin tubing used in corrosion environment. Custom designed and manufactured conductive contact analytical probes for use in their medical testing equipment.

Grinnell Corporation, Cranston, RI

Analysis of components involved in fire sprinklers. Analysis of piping components and welding procedures.

Handy and Harman, East Providence, RI

Analysis of clad material corrosion.

Idea Tech Inc., Providence, RI

Worked on designing fabric based breath heat exchanger.

Intelligen Energy Systems, Inc., Hopkinton, MA

Analysis of cogeneration heat exchanger design and materials selection. Analysis of aluminum clutch components and bolts from diesel engine used in electrical cogeneration.

Jamestown Marine Service, Inc., Jamestown, RI

Analysis of weldments in 100 foot aluminum passenger ship.

Johnson & Johnson, MA

Specialized materials analysis and evaluations for medical applications.

Key Drawers, Inc, Valencia, CA

Designed electrical nickel plated contact for automotive key inventory system. Responsible for final design of injection molded plastic ICU body and quality control of contacts and molded body fit.

Latex Foam Products, Ansonia, CT

Inspection of foam molds after warehouse fire.

Maritime Consultants, Inc., Bristol, RI

Analysis of marine components, propeller shafts, marine engine valves.

Masonellan, Avon, MA

Corrosion analysis of electrical and monitoring devices.

ME-92 Operations, Providence, RI

Multiple analyses on surgical devices involving, heat treatment, welds, brazing, corrosion, improper cleaning, forming and materials. Performed extensive corrosion, friction, wear and galling studies of stainless steel and proprietary coating technologies. Presented results of research studies to international society meetings. Commissioned to author a designer guide to the wear and friction of stainless steels and coatings.

McCallum Enterprises I LP, Stratford, CT.

Shaft analysis and inspection of two horizontal hydroelectric turbine units at Derby Dam Project, Shelton, Ct..

Milwaukee Valve Company, Milwaukee, WI

Analysis of industrial stainless steel valves and surface conditions. Investigated proper processing techniques.

New England Power, MA

Investigated DC power converter used in long range power transmission from Canada and redistribution to the Northeast. Determined corrosion mechanism and root cause in ultra pure water system.

Nutmeg Companies, Inc., Norwich, CT

Analysis of piping system and steam bellows installed at Naval Submarine Base, Groton, CT.

Parker Aerospace, Waltham, MA

Analysis of helicopter shafts and fatigue study.

Pelton and Crane (A Siemens Company), Charlotte, NC

Investigated manufacture, cleaning, surface finish and welding of stainless steel autoclave, pressure vessels for dental instrument sterilization.

Pfizer, Inc., Groton, CT

Site evaluation and analysis of structural materials used in chemical facilities.

Sandretto Plastics Machinery, Middleburg Heights, OH

Inspection of plastic extrusion machine and platen.

Shawmut Equip. Co., Manchester, CT

Field inspection of heavy crane carrier involved in fire.

Smith Nephew and Richards*, Memphis, TN

Review of welded stainless steel assembly.

Smith Nephew and Richards*, Bartlett, TN

Review of surgical cutting devices and edge evaluation.

Spacelabs Medical, Hamden, CT

Analysis of medical electrode.

Stanley Fastening Systems, East Greenwich, RI

Involved in numerous analysis on fasteners and driving mechanisms and housings.

Stryker Puerto Rico, Arroyo, PR

Review of materials processes and inspection of surgical components.

Swarovski America USA, Cranston, RI

Specified and performed simulated and accelerated environmental wear studies of enamel, crystals and adhesives.

Swift Textiles, Inc., Erwin, NC

Analysis of cast iron piping component from heating system and production line fan assembly.

Technical Materials, Inc., Lincoln, RI

Performed analytical studies on electrical and microelectronics components, and contact material. Components involved in arson.

Thielsch Engineering Incorporated, Cranston, RI

Specified and performed analytical laboratory analysis for Professional Engineering Department involving failed piping and pressure vessels, fires, arson cases, and industrial failures.

Travel leather, Peabody Mass

Inspection of failed stainless steel hot water heating tank, used in leather factory.

Triumvirate Environmental, Inc., Somerville, MA

Analysis and characterization of soil samples.

Truex Inc., Pawtucket, RI

Microstructural analysis of brass hose fittings to determine proper heat treatment.

United Plant Services, Inc., Bellingham, MA

Prescribed and used novel analytical techniques to identify numerous unknown substances to assist in-house analysis of piping systems.

Valley Laboratories, Inc., Boulder, CO

Developed coatings and surface enhancements for stainless steel electrosurgical device.

Vitrus, Inc., Pawtucket, RI

Analysis of hermetically sealed high voltage junctions, used in compressor tanks to prevent shorting and fires.

Vollrath Company, Sheboygan, WI

Process analysis and site evaluation to determine cause of surface defects in deep drawn pressurized vessels used for dental applications.

Westinghouse Operating Service, Bellingham, MA

Identified numerous unknown substances to assist in-house analysis of piping systems.

World Medical Manufacturing Co., Sunrise, FL

Testing of Nitinol stent wires and design of fatigue test equipment.

Zimmer, Orthopedic Implant Division*, Warsaw, IN

Surgical device design and testing. Recommendations involving surface coating enhancement.

* Star indicates: consulting performed through affiliation with another medical service company.

Partial List of Insurance and Legal Related and Consulting Clients

AllState Insurance Co.,

Design, manufacture and materials used for OEM and replacement auto sheet metal.

Amica Mutual Insurance Co., Providence, RI

Analysis of marine shaft.

Brown, Jacobson, Tillinghast, Lahan & King, P.C., Norwich, CT

Investigation of watercraft explosion and personal injury.

Corbally, Gartland and Rappleyea, Attorneys and Counselors at Law, Poughkeepsie, NY

Expert opinions regarding personal injury involving cookware.

Dussault & Zatir Office, New Bedford, MA

Expert opinions regarding personal injury on recreational equipment.

DeLuca & Weizenbaum, LTD, Providence, RI

Investigation of ignition system involved in automobile fire.

Higgins & Slatery, Attorneys at Law, Providence, RI

Analysis of hand tools involved in personal injury.

Inman & Tourgee Attorneys at Law, Coventry, RI

Analysis of hand tools involved in personal injury.

Marc H. Richman, Inc., Consulting Engineers, Providence, RI

Litigation support services for numerous product liability cases for insurance companies and attorneys. Cases involved piping systems, municipal waterlines, natural gas and home oil lines, CO production of stoves, hydroelectric plants and turbines, machinery, surgical devices, dental appliances, material identification, automobiles and other vehicles, slip and fall, ladders and defective products.

Gunster, Yoakley, Valdes-Fauli, Stewart, Miami, FL

Expert analysis and opinion of medical device prototypes, involved in patent dispute.

Reuters Insight, Thomson Reuters

Engineering Industry and Medical Science expert.

Technical Network Consulting, Bala Cynwyd, PA

Registered expert for providing testimony, opinions and analysis for attorneys on a referral basis.

Travelers Property Casualty, Hartford, CT

Analysis of marine engine components.

The Pawtucket Legal Clinic, Pawtucket, RI

Materials analysis for sample involved in litigation.

Thielsch Engineering Incorporated, Cranston, RI

Specified and performed analytical laboratory analysis for Professional Engineering Department involving failed piping and pressure vessels, fires, arson cases, and industrial failures.

John D. Jarrell, PhD, PE

TRIALS, DEPOSITIONS AND ARBITRATIONS

Trials

08/24/2006	Estate of Joseph W. Niemczura (Metal oxide formation on Cu)	Hampden County Probate Court
04/07/2005	Frances Lavita v. Charles Wright, M.D. (Stainless steel surgical skin staples and nickel allergy)	Middlesex Superior Court, MA
09/16/2003	Maxner v. Cosco (Battery operated electronic device)	Seattle, WA
05/24/2000	Saied Kashani v. Mercedes (Uniblade & windshield system)	San Diego, CA
10/05/1999	Torchia v. Van Dorn Demag,	Rochester NY
07/20/1992	Hatara v. Turner Cooper Tools, Division of Cooper Industries, Inc. (propane/MAP tank explosion)	US District Court of MA

Depositions

08/15/2013	Tim Courson v. Wright (Failed Ti modular hip neck)	US District Court, Middle Dis Georgia, Macon Div. Firm: Fortson, Bentley and Griffin, P.A.
07/23-24/2013	Kilgore v. Synthes (failed titanium spinal implants)	US District Court, Southern Georgia, Augusta Div Firm: Blasingame, Burch, Garrard & Ashley
06/24/2013	Steven Brown v. Snook, et. al. (Duraform Bovine collagen in spinal surgery)	5th District Court, Washington County, Utah Firm: Aaron J. Prsbrey, PC
05/08/2013	Penn Chiro. v. BCBSBA (Spinal traction, roller table, massage chair)	US District Court, N. District of IL, E. Div. Firm: McDermott Will & Emery LLP
02/07/2013	Chad Boatman v. Synthes, et. al. (Orthopaedic wrist screws)	District Court, Orange County, TX Firm: Provost Umphrey Law Firm
11/13/2012	Carpenter v American Medical Systems (AMS monarch transvaginal mesh)	Superior Court, CA, County of San Bernardino Firm: Albertson & Davidson, LLP
05/08/2010	Cole v. LDR Holdings, et. al. (New design spinal fusion implant)	District Court, Smith County, TX Firm: Martin Walker, PC
04/16/2010	Jennings v. Alsager, et al. (Duragesic, fentanyl reservoir pain patch)	Superior Court, WA, King County Firm: Heygood, Orr, Pearson
04/02/2010	Auburn v. Johnson & Johnson, Alza, et al. (Fentanyl reservoir pain patch)	Superior Court, CA, County of Sacramento Firm: Heygood, Orr, Pearson
02/05/2009	D.A. West v. Alza Corp (Fentanyl laminated reservoir pain patch)	Distr. Court, Trinity County, TX Firm: Heygood, Orr, Pearson
11/23/2004	Delbrook v. Aescualp, Inc. (Stainless steel surgical ronguer)	Superior Court of WA, King County
04/01/2004	FV Western Hunter-Casco Bay Diesel (Marine transmission & converter)	Providence, RI
02/05/2004	Dixie Smith (Class Action) v. AllState (Automotive sheet metal parts, fabrication and safety)	
08/19/2003	Maxner v. Cosco (Battery operated toy)	Seattle, WA
05/22/2003	Cecil E. Dodson v. Ford Motor Company (Electrical switch/auto fire)	RI Superior Court
05/16/2001	Serdin v. USSC, Kaiser Foundation Hospitals (Attorney: Patrick Emery, medical stapler)	Superior Court, CA County of Sonoma
05/23/2000	Saied Kashani v. Mercedes (Uniblade & windshield system)	San Diego, CA
05/1999	ME-92 v. Smith Nephew (Medical grade surface coating for stainless steels)	Memphis, TN
10/21/1998	Turchiano v. Howmedica (Spinal implant failure)	US District Court of NY
05/1992	Hatara v. Turner Cooper Tools, Division of Cooper Industries, Inc. (Propane/MAP tank explosion)	US District Court of MA

Arbitrations

02/22/2011	Eric Grabowski v Kaiser Foundation; Shaieb, MD (PEEK Shoulder Anchor)	Hawaii
07/2005	Travel leather, Peabody Mass v. Hartford Steam Boiler (Stainless hot water tank, BINGHAM MCCUTCHEN LLP)	Boston, MA

REFERENCES

- Dr. Jeffrey R. Morgan Co-Director, Graduate Program in Biomedical Engineering
Associate Professor of Medical Science and Engineering
Department of Molecular Pharmacology, Physiology, and Biotechnology
Brown University, G-B 393, Biomed Center
171 Meeting Street, Providence, RI 02912
Phone (401) 863-9419
jeffrey_morgan@brown.edu
- Dr. Christopher T. Born, MD Director of Orthopaedic Trauma, Rhode Island Hospital
2 Dudley Street, Suite 200, Providence, RI 02905
Professor of Orthopaedic Surgery,
The Alpert Medical School of Brown University
Providence, RI 02912
Phone (401) 457-1562
christopher_born@brown.edu
- Dr. Marc H. Richman, PE President, Marc H. Richman, Inc., Consulting Engineers,
Professor of Materials Science and Engineering (ret.)
Brown University, Department of Engineering
One Richmond Square, Providence, RI 02906.
Phone (401) 751-9656
- Edward E. Angwin, Esq. Angwin Law Firm (Fentanyl Patch Cases)
750 Laurel Ranch Road
Bozeman, MT 59715
Phone (406) 548-7200
ed@angwinlaw.com
- Jack Walker, Esq. Martin Walker, PC (Orthopaedic Implants)
522 S. Broadway, Suite 200
Tyler, Texas 75702
Phone (903) 526-1600
jwalker@martinwalkerlaw.com

MSA MATERIALS SCIENCE ASSOCIATES, LLC

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